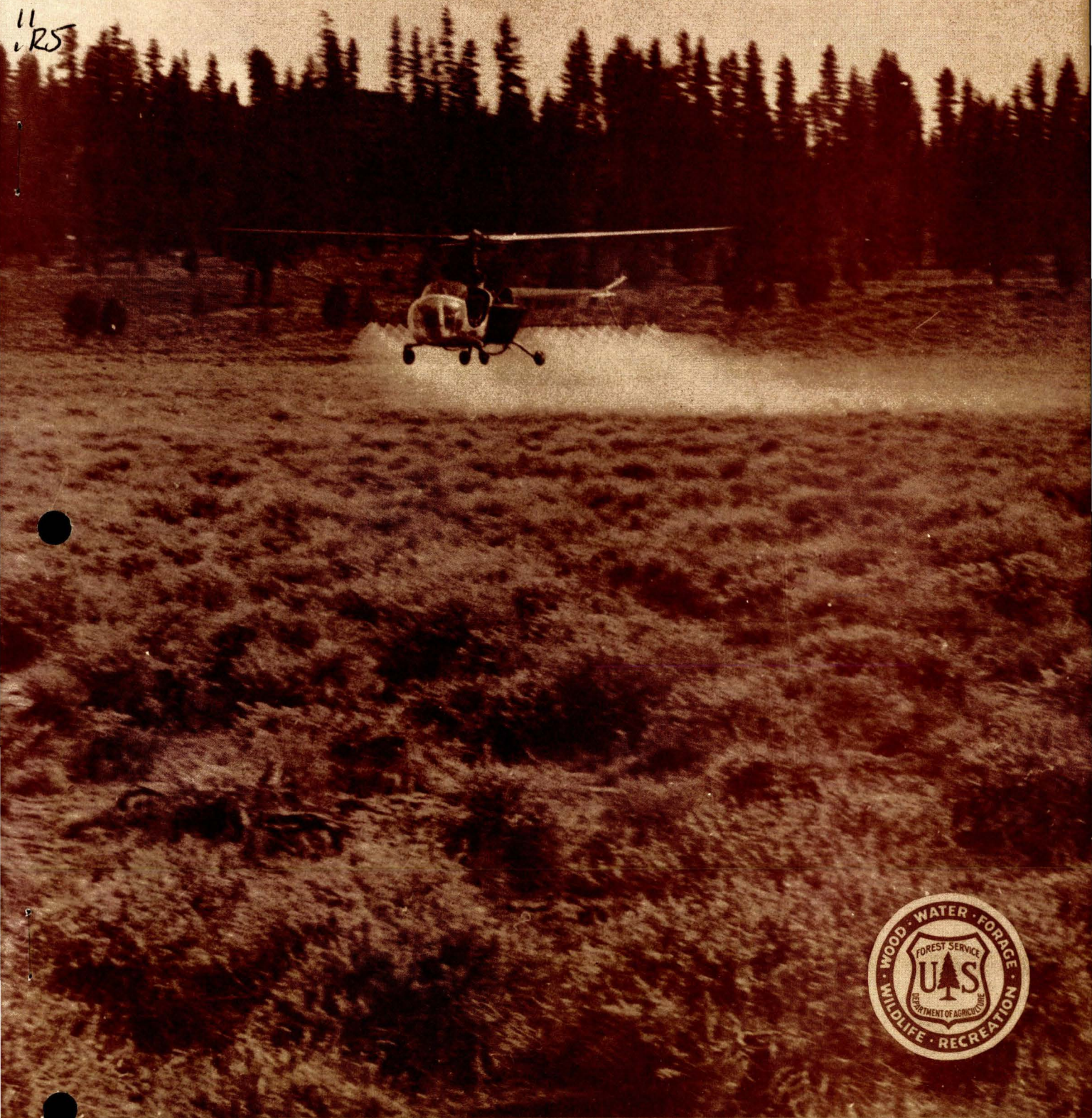


Range Revegetation 1959

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U.S. DEPARTMENT OF AGRICULTURE · FOREST SERVICE · CALIFORNIA REGION

THE COVER

AERIAL APPLICATION OF 2,4-D TO CONTROL BIG SAGEBRUSH. REMOVAL OF SUCH NOXIOUS COMPETING VEGETATION RESULTS IN INCREASED PRODUCTION OF DESIRABLE FORAGE SPECIES. CHAMPS FLAT GRAZING ALLOTMENT, LASSEN NATIONAL FOREST.

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APRIL 1960

RANGE REVEGETATION

1959

IMPROVEMENT OF THE FORAGE RESOURCE ON NATIONAL FOREST RANGELANDS IN THE CALIFORNIA REGION DURING 1959 WAS ACCOMPLISHED THROUGH A COMBINATION OF MANAGEMENT AND REHABILITATION. PROPER MANAGEMENT IS ESSENTIAL TO MAXIMUM SUSTAINED PRODUCTION. HOWEVER, ARTIFICIAL MEASURES SUCH AS UNDESIRABLE PLANT CONTROL, SEEDING TO INTRODUCED SPECIES, ETC. IS AN IMPORTANT PHASE OF THE FOREST SERVICE IMPROVEMENT PROGRAM. CONSIDERING THE EVER-INCREASING DEMANDS OF USES OTHER THAN LIVESTOCK GRAZING ON NATIONAL FOREST LANDS, PRESENT STOCKING LEVELS CAN ONLY BE MAINTAINED THROUGH AN ADEQUATE IMPROVEMENT PROGRAM. THE CALIFORNIA REGION HAS BEEN WORKING TOWARD THIS GOAL FOR THE PAST SEVERAL YEARS.

FINANCING

FUNDS AVAILABLE FOR THE RANGE IMPROVEMENT PROGRAM ORIGINATED FROM TWO SOURCES, FIGURE 1. COOPERATOR PARTICIPATION INCLUDED THAT OF PERMITTEES AND THE CALIFORNIA FISH AND GAME DEPARTMENT IN THE FORM OF ACTUAL EXPENDITURE AND CONTRIBUTED EQUIPMENT TIME AND LABOR. THE INDICATED FOREST SERVICE PORTION CONSISTS OF REGULARLY APPROPRIATED RANGE AND WILDLIFE IMPROVEMENT FUNDS, PREDOMINANTLY. A LESSER AMOUNT WAS CONTRIBUTED BY OTHER ACTIVITIES - FIRE CONTROL, WATERSHED MANAGEMENT, AND TIMBER MANAGEMENT.

OF ALL FUNDS AVAILABLE FOR THE IMPROVEMENT OF FORAGE SUPPLIES IN 1959, 88% WAS USED FOR ON-THE-GROUND PHASES OF TREATMENT, FIGURE 1. THIS INCLUDES AN EXPENDITURE OF 8% FOR SUITABLE EQUIPMENT. TWELVE PERCENT OF THE FUNDS (ONLY GOVERNMENT MONIES) WAS REQUIRED FOR SALARIES, TRAVEL, AND MISCELLANEOUS OVERHEAD EXPENSES.

AVAILABLE FUNDS WERE APPORTIONED BETWEEN 15 OF THE 17 NATIONAL FORESTS COMPRISING THE CALIFORNIA REGION. FOREST DISTRIBUTION OF FUNDS WAS BASED ON RANGE-WILDLIFE NEEDS, ACREAGE REQUIRING IMPROVEMENT, COOPERATOR INTEREST, AND EXPECTED BENEFITS TO OTHER USES. THOSE FORESTS WITH MAJOR RANGE MANAGEMENT WORKLOADS RECEIVED PROPORTIONATE FINANCING.

IN ADDITION, \$92,870 OF EMERGENCY FLOOD CONTROL FUNDS WERE USED IN 1959 TO SEED WILDFIRE BURNS TO REDUCE POTENTIAL DOWNSTREAM DAMAGE. THESE FUNDS ARE SPECIFICALLY APPROPRIATED BY CONGRESS FOR THIS PURPOSE AND THEIR USE HAS BEEN RESTRICTED TO DENSELY POPULATED AREAS IN SOUTHERN CALIFORNIA. ELSEWHERE IN THE REGION, REGULARLY APPROPRIATED FUNDS HAVE BORNE TREATMENT COSTS OF WILDFIRE BURNS. IN 1959, \$14,430 OF SUCH FUNDS WERE USED FOR THIS TREATMENT, TABLE 1.

WHERE THEY CAME FROM...



\$ 22,100 — from Cooperator

\$ 129,000 — from Forest Service

WHERE THEY WENT...

Equipment Purchase — \$ 10,300

Overhead — \$ 18,500

On-the-ground
Treatment — \$ 122,300

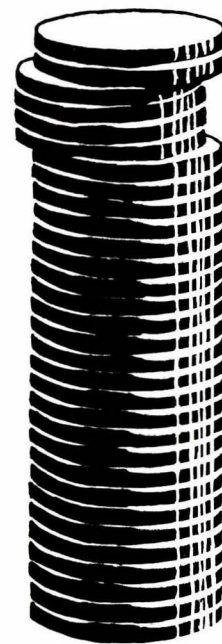


Fig. 1 - RANGE IMPROVEMENT DOLLARS

ACCOMPLISHMENT

DURING THE YEAR, 74,237 ACRES WERE TREATED BY VARIOUS METHODS TO BENEFIT ONE OR MORE USES OF NATIONAL FOREST LANDS, TABLE I. THIS INCLUDES 61,047 ACRES OF WILDFIRE BURN TREATED WITH EMERGENCY FUNDS AND 13,190 ACRES TREATED WITH OTHER MONIES. IN DESCENDING ORDER, THE EFFORT WILL BE BENEFICIAL TO WATERSHED PROTECTION, RANGE AND WILDLIFE, FIRE CONTROL, AND RECREATIONAL ACTIVITIES. TREATMENT MEASURES INCLUDED THE INTRODUCTION OF ADAPTED GRASS SPECIES FOR FORAGE AND SOIL STABILIZATION ON PREPARED AND UNPREPARED SEEDBEDS, REMOVAL OF UNDESIRABLE VEGETATION BY MECHANICAL AND CHEMICAL MEANS, FERTILIZATION OF NATIVE RANGE AND WATER SPREADING.

APPROXIMATELY 27 MILES OF FENCE WAS CONSTRUCTED TO PROVIDE PROTECTION AND TO AID SUBSEQUENT MANAGEMENT OF THE TREATED AREAS. IN SOME INSTANCES, SHORT TERM NON-USE BY THE PERMITTEE PRECLUDED THE NEED FOR FENCING.

EMERGENCY SEEDING OF 61,047 ACRES OF WILDFIRE BURN WAS ACCOMPLISHED ON FOUR FORESTS IN SOUTHERN CALIFORNIA. ADAPTED ANNUAL GRASS SPECIES WHICH GERMINATE READILY ARE USED TO PROVIDE A PROTECTIVE COVER TO THESE FIRE-DENUDED AREAS. FUNDS PROVIDED FOR THIS PURPOSE MUST BE REQUESTED FROM CONGRESS WHEN SUCH SITUATIONS OCCUR AND CANNOT BE USED PRIMARILY TO BENEFIT THE GRAZING PROGRAM ON NATIONAL FORESTS.

SEVERAL PIECES OF SPECIALIZED EQUIPMENT SUCH AS RANGELAND DRILLS, EQUIPMENT CARRIERS AND BOOM SPRAYERS WERE PURCHASED DURING THE YEAR TO FURTHER THE PROGRAM. MOST COMMERCIALY AVAILABLE EQUIPMENT IS NOT SUITED TO THE WILDLAND CONDITIONS EXISTING ON MUCH OF THE NATIONAL FOREST AREA. THE ADDITIONAL EQUIPMENT WILL FACILITATE OVERALL ACCOMPLISHMENT.

TOTAL AREA TREATED BY ALL METHODS IN 1959 EXCEEDED THAT OF 1958 BY 1,750 ACRES, FIGURE 2. SIXTY-ONE THOUSAND FIFTY ACRES OF WILDFIRE BURN SEEDING FOR FLOOD CONTROL PURPOSES DURING THE YEAR (COMPARED WITH 9,600 ACRES IN 1958) HAS BEEN EXCLUDED.

ALMOST ONE-HALF OF ACREAGE TREATED OCCURRED IN THE "UNSEED-ED-COMPETITION REMOVED" CATEGORY, SOMEWHAT LESS THAN IN 1958. IN MOST INSTANCES, THE BENEFITS OBTAINED PER DOLLAR SPENT ON THIS METHOD OF TREATMENT ARE GREATER THAN FROM OTHER METHODS. RESIDUAL NATIVE FORAGE SPECIES ARE PRESENT IN SUFFICIENT AMOUNTS TO RESPOND TO THE IMPROVED CONDITIONS RESULTING FROM CONTROL OF UNDESIRABLE SPECIES.

AN APPRECIABLE INCREASE IN "SKID ROAD" SEEDING OCCURRED IN 1959, FIGURE 2. THIS EFFORT IS INTENDED TO AID IN THE STABILIZATION OF ROADS, LANDINGS, AND OTHER AREAS DISTURBED BY LOGGING. TREATMENT COSTS ARE BORNE BY THE LOGGING OPERATOR.

TABLE I

ACREAGE AND EXPENDITURE BY TREATMENT - 1959

TREATMENT	ACRES	EXPENDITURE		UNIT COST
		FOREST SERVICE	COOPERATOR	
<u>SEEDING</u>				
PREPARED SEEDBED ✓	747	\$ 7,709	\$ 808	\$ 8,517
NATURAL SEEDBED ✓	122	909	9	918
PLANNED BURN ✓	854 1/	6,718	1,410	8,128
ACCIDENTAL BURN:				
GRAZING ✓	2,452	14,432	--	14,432
FLOOD CONTROL ONLY 2/	61,047	92,870	--	92,870
COMPETITION REMOVED ✓	212	2,185	--	2,185
SKID ROADS	1,406	511	12,141	12,652
EROSION CONTROL	150	330	--	330
SUB TOTAL	66,990	125,664	14,368	140,032
<u>UNSEEDING</u>				
COMPETITION REMOVED ✓	6,257	50,007	7,611	57,618
NOXIOUS FARM WEED CONTROL ✓	100	1,142	40	1,182
WATER SPREADING ✓	597	2,952	--	2,952
FERTILIZED ✓	293	1,088	75	1,163
SUB TOTAL	7,247	55,189	7,726	62,915
TOTAL	74,237	180,853	22,094	202,947
FENCING (PROTECTION - MANAGEMENT), MILES	27 1/4	12,198	--	12,198

Suppl. 6400 ac.

1/ INCLUDES ONLY COMPLETED PROJECTS.

2/ FINANCED WITH EMERGENCY FLOOD CONTROL FUNDS.

3/ ADDITIONAL SEEDBED PREPARATION COST OF \$8.75 PER ACRE IN 1958.

SEEDED

Prepared seedbed

Natural seedbed

Planned burn

Wildfire burn - grazing

Competition removed

Skid roads

Test plots

Erosion control

Fertilized

UNSEEDED

Competition removed

Farm weed control

Waterspreading

Fertilized

TOTAL

(Excluding wildfire burns
seeded for flood control
purposes)

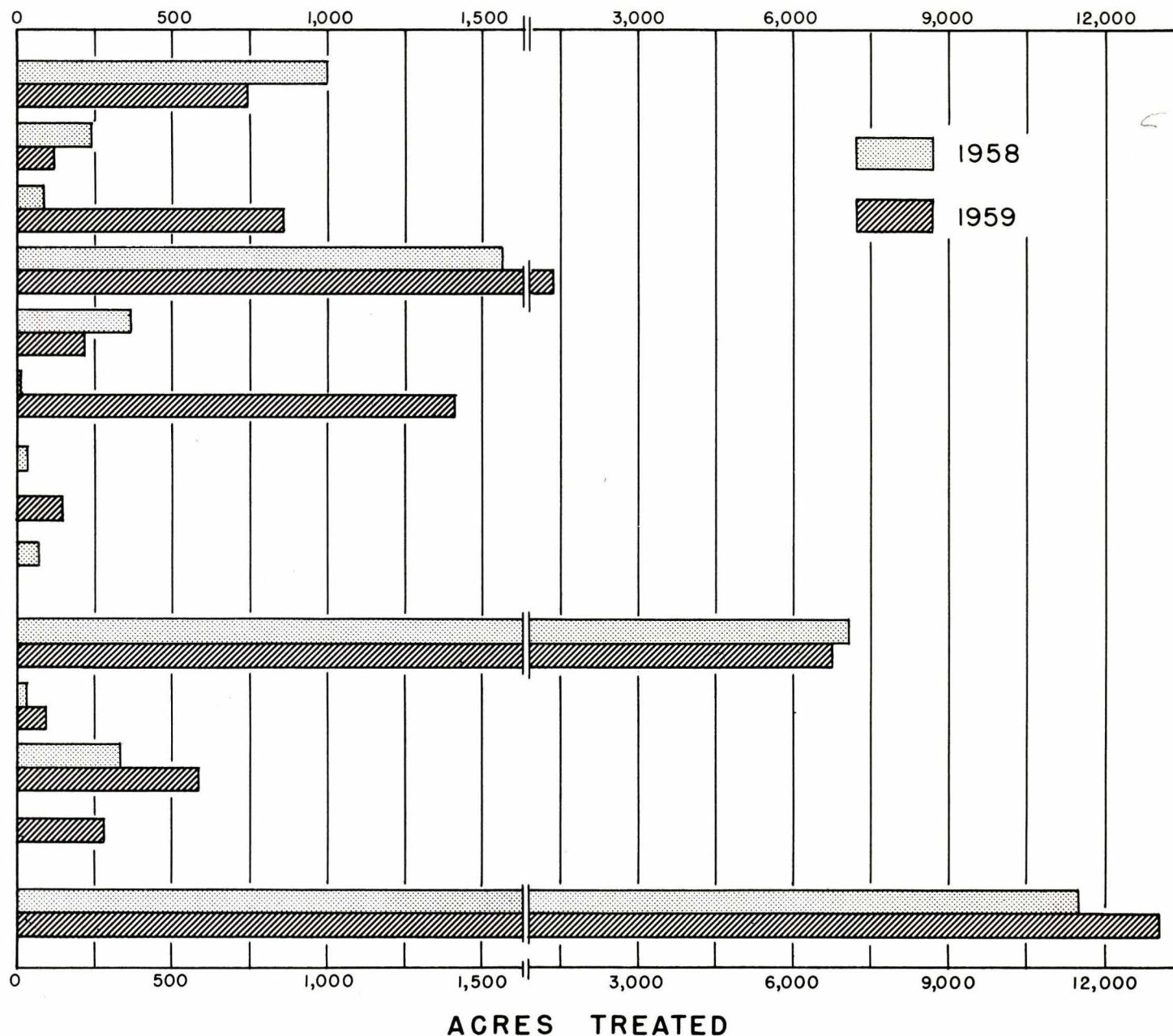


Fig. 2 - COMPARATIVE ACCOMPLISHMENT BY METHOD OF TREATMENT 1958 - 1959

TREATMENT COSTS

TOTAL FUNDS FROM ALL SOURCES AVAILABLE FOR TREATMENT APPLICATION WERE SPENT AS SHOWN IN FIGURE 3. FUNDS EXCLUDED IN THIS ANALYSIS ARE THOSE USED FOR OVERHEAD AND EQUIPMENT (FIGURE 1) AND EMERGENCY FUNDS USED TO SEED WILDFIRE BURNS FOR FLOOD CONTROL PURPOSES (TABLE 1).

ABOUT ONE-HALF OF EACH DOLLAR WAS CONCERNED WITH IMPROVEMENT MEASURES WHICH INCLUDED SEEDING AS A PART OF TREATMENT. THE REMAINING HALF WAS USED PRIMARILY TO TREAT RANGE AREAS HAVING AN ADEQUATE STAND OF NATIVE VEGETATION WHICH DID NOT REQUIRE SEEDING. CHEMICAL CONTROL OF BIG SAGEBRUSH (ARTEMISIA TRIDENTATA) WAS THE MAJOR TREATMENT IN THIS CATEGORY.

A COMPARATIVE BREAKDOWN OF COSTS BY TREATMENT METHODS IS SHOWN IN FIGURE 4. COST DIFFERENCES BETWEEN METHODS ARE THE RESULT OF A NUMBER OF FACTORS. SITE CONDITIONS, AMOUNT OF DESIRABLE NATIVE VEGETATION, PROJECT SIZE, DEGREE OF SITE PREPARATION, FORAGE SPECIES BEING INTRODUCED, AND SEEDING RATE ARE SEVERAL WHICH INFLUENCE COSTS.

A CASE IN POINT IS A COMPARISON OF THE TWO TREATMENTS "COMPETITION REMOVED" WITH AND WITHOUT SEEDING, FIGURE 4. IN THE FORMER, COMPETING BRUSHY VEGETATION IS REDUCED OR ELIMINATED BY MECHANICAL OR CHEMICAL MEANS OR A COMBINATION OF BOTH. FREQUENTLY, AS IN CHAPARRAL TO GRASS CONVERSION PROJECTS, THREE OR MORE SPECIFIC TREATMENTS ARE REQUIRED TO ACCOMPLISH THE OBJECTIVE. ORDINARILY THESE INCLUDE CRUSHING AND BURNING THE BRUSH AND ONE OR TWO APPLICATIONS OF HERBICIDE TO CONTROL BRUSH SPROUTS AND SEEDLINGS AFTER SEEDING. ALL SUCH COSTS ARE CONSIDERED IN THE SEEDBED PREPARATION PORTION OF TREATMENT. IN 1959, THE END PRODUCT WAS ATTAINED AT A TOTAL COST OF \$19.00 PER ACRE ALMOST ONE-HALF OF WHICH WAS USED FOR SEEDBED PREPARATION MEASURES. ON THE OTHER HAND, WHERE AN ADEQUATE UNDERSTORY OF GOOD FORAGE SPECIES IS INTERMINGLED WITH UNDESIRABLE PLANTS, MUCH THE SAME RESULT WAS OBTAINED AT A COST OF \$9.20 OR ABOUT HALF THE COST. IN THIS INSTANCE, COMPETING SPECIES (PREDOMINANTLY BIG SAGEBRUSH) WERE SATISFACTORILY CONTROLLED WITH BUT ONE APPLICATION OF HERBICIDE AND DID NOT INVOLVE CRUSHING AND BURNING TREATMENTS.

ACCOMPLISHMENT IN THE RANGE IMPROVEMENT FIELD HAS BEEN ON THE INCREASE DURING THE PAST SEVERAL YEARS WITHOUT ANY APPRECIABLE INCREASE IN FUNDS APPROPRIATED FOR THIS PURPOSE. INCREASED ACCOMPLISHMENT CAN BE EXPECTED IN THE FUTURE FROM FURTHER REFINEMENT OF TECHNIQUES AND METHODOLOGY, REDUCED COSTS, AND INCREASED PERMITTEE PARTICIPATION.

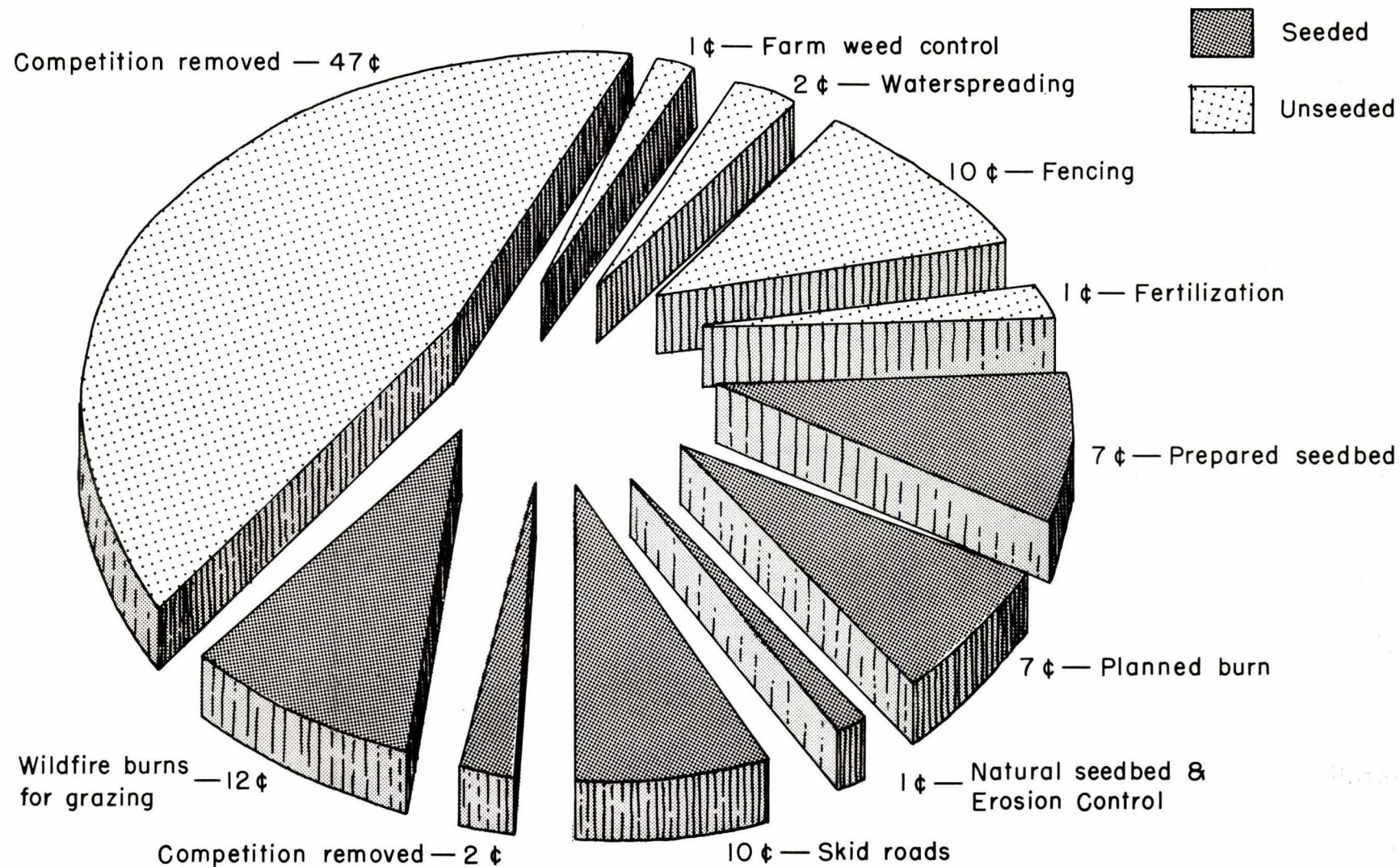


Fig. 3 — WHAT HAPPENED TO THE IMPROVEMENT DOLLAR

WITH SEEDING

Prepared seedbed

Natural seedbed

Planned burn

Wildfire burn—grazing

Wildfire burn—flood control

Competition removed

Skid roads

Erosion control

AVERAGE (Weighted)

WITHOUT SEEDING

Farm weed control

Waterspreading

Competition removed

Fertilized

AVERAGE (Weighted)

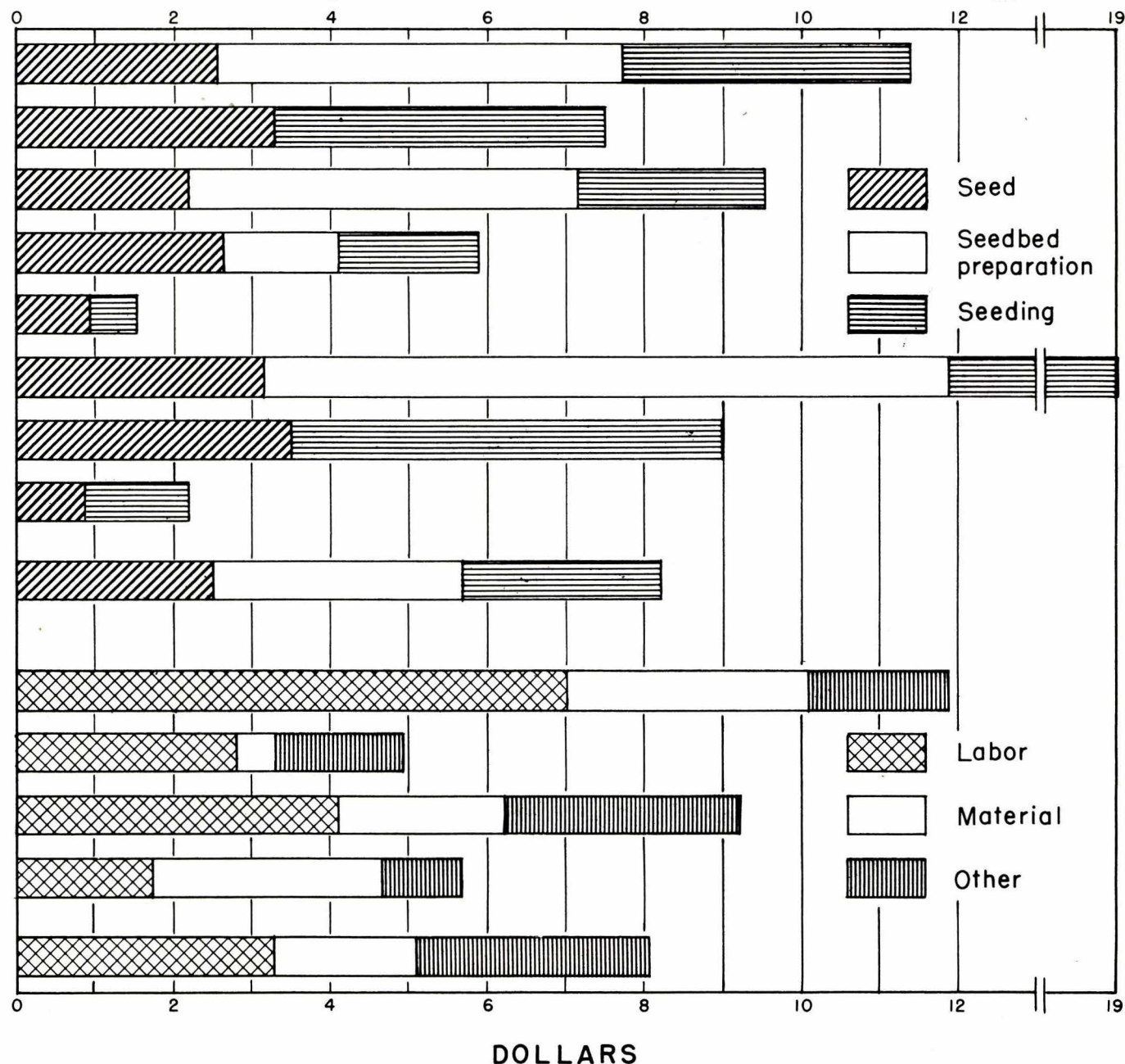


Fig. 4 – AVERAGE ITEMIZED COSTS PER ACRE BY TREATMENT METHOD

Don't let
carelessness destroy this!



PREVENT RANGE FIRES!